

PROJECT NUMBER: 2106
PROJECT TITLE: Cigarette Performance and Design
PROJECT LEADER: R. W. Dwyer
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I. CIGARETTE DELIVERY MODELING (J. Kao and B. Dwyer)

- A. Objective: Develop predictive equations for relating cigarette performance to design.
- B. Results: Tennessee Eastman's filter research laboratory has provided us with an extensive list of cellulose-acetate cigarette filter properties. Their experimental program included filter pressure drops and smoke removal efficiencies for unusually broad ranges of fiber size, number of fibers, filter length and filter circumference. We are using these data to develop models of vapor and particulate filtration as functions of filter design.
- C. Conclusions: A semi-empirical model of smoke filtration efficiency has been developed. This model surpasses other models currently in the literature in terms of accuracy. A theoretical approach is being pursued to partition the total efficiency into particulate and condensation contributions.